



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b>  <b>C08G 81/00, A61K 9/50</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 98/47948</b>  <b>(43) International Publication Date:</b> 29 October 1998 (29.10.98)
<b>(21) International Application Number:</b> PCT/US98/07590  <b>(22) International Filing Date:</b> 17 April 1998 (17.04.98)  <b>(30) Priority Data:</b> 60/044,726 18 April 1997 (18.04.97) US  <b>(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application</b> US 60/044,726 (CIP) Filed on 18 April 1997 (18.04.97)  <b>(71) Applicant (for all designated States except US):</b> CALIFORNIA INSTITUTE OF TECHNOLOGY [US/US]; 1201 East California Boulevard, Mail Code 210-85, Pasadena, CA 91125 (US).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> HUBBELL, Jeffrey, A. [US/CH]; Unterdorfstrasse 22, CH-8126 Zumikon (CH). ELBERT, Donald, L. [US/US]; 385 S. Catalina Avenue #312, Pasadena, CA 91106 (US). HERBERT, Curtis, B. [US/US]; University of Minnesota, Dept. of Chemical Engineering and Materials Science, 151 Amundson Hall, 421		Washington Avenue, S.E., Minneapolis, MN 55455-0132 (US).  <b>(74) Agent:</b> PABST, Patrea, L.; Arnall Golden & Gregory, 2800 One Atlantic Center, 1201 West Peachtree Street, Atlanta, GA 30309-3450 (US).  <b>(81) Designated States:</b> AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, GW, HU, ID, IL, IS, JP, KP, KR, LC, LK, LR, LT, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> MULTIFUNCTIONAL POLYMERIC TISSUE COATINGS  <b>(57) Abstract</b>  Compositions for coating biological and non-biological surfaces, which minimize or prevent cell-cell contact and tissue adhesion, and methods of preparation and use thereof, are disclosed. Embodiments include polyethylene glycol/polylysine (PEG/PLL) block or comb-type copolymers with high molecular weight PLL (greater than 1000, more preferably greater than 100,000); PEG/PLL copolymers in which the PLL is a dendrimer which is attached to one end of the PEG; and multilayer compositions including alternating layers of polycationic and polyanionic materials. The multi-layer polymeric material is formed by the ionic interactions of a polycation and a polyanion. The molecular weights of the individual materials are selected such that the PEG portion of the copolymer inhibits cellular interactions, and the PLL portion adheres well to tissues. The compositions and methods are useful, for example, in inhibiting formation of post-surgical adhesions, protecting damaged blood vessels from thrombosis and restenosis, and decreasing the extent of metastasis of attachment-dependent tumor cells. The compositions and methods are also useful for coating non-biological surfaces such as metallic surfaces.		